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Journal of the Society of Arts.

FRIDAY, APRIL 12, 1867.

Announcements by the Council.

ORDINARY MEETINGS.

Wednesday Evenings at Eight o'Clock:—

APRIL 24.—“On the Construction of Iron Ships, and their Preservation by Zinc Sheathing.” By S. J. MACKIE, Esq., F.G.S.

CANTOR LECTURES.

Mr. HULLAH's course, “On Music and Musical Instruments,” will be extended by two additional lectures, as follows:—

LECTURE VII.—MONDAY, APRIL 29.

MUSICAL INSTRUMENTS (*continued*).—The Bow—The Key-board—The Violin—The Organ—The Clavichord.

LECTURE VIII.—MONDAY, MAY 6.

MODERN INSTRUMENTS, CHAMBER AND ORCHESTRAL.—The Pianoforte—Combination of Instruments—The Orchestra.

The lectures commence at eight o'clock, and are open to members, each of whom has the privilege of introducing one friend.

ARTIZANS' VISITS TO PARIS.

The Council of the Society of Arts, feeling the importance of promoting the intelligent study of the Paris Exhibition and the manufacturing establishments in France by artisans of the United Kingdom, have appointed a Committee in furtherance of this object. The following gentlemen constitute the Committee:—

Rt. Hon. C. B. Adderley, M.P.	R. L. Chance.
C. W. Aitken.	Harry Chester, <i>Vice-Pres.</i>
Edward Akroyd, M.P., <i>Vice-Pres.</i>	The Masters of the City Companies.
Sir W. G. Armstrong, C.B.	Henry Cole, C.B., <i>Vice-Pres.</i>
A. S. Ayrton, M.P.	Robt. Coningsby.
S. A. Beaumont.	Rt. Hon. W. Cowper, M.P.
John Bell, <i>Memb. of Council.</i>	Sir Francis Crossley, Bart., M.P.
Professor Bentley, <i>Memb. of Council.</i>	J. Bailey Denton, <i>Memb. of Council.</i>
Lord Berners, <i>Vice-Pres.</i>	Lord de l'Isle and Dudley, <i>Vice-Pres.</i>
Hon. and Rev. S. Best.	The Duke of Devonshire.
D. Robertson Blaine, <i>Memb. of Council.</i>	Charles Dickens.
W. H. Bodkin (Assistant-Judge), <i>Vice-Pres.</i>	James Easton, <i>Memb. of Council.</i>
Sir J. P. Boileau, Bart., <i>Vice-Pres.</i>	C. W. Eborall.
R. K. Bowley.	Lord Ebury.
Antonio Brady.	Lord Elcho, M.P.
Rt. Hon. H. A. Bruce, M.P.	William Fairbairn, F.R.S.
Decimus Burton.	Professor Fawcett, M.P.
C. Buxton, M.P.	Peter Graham, <i>Memb. of Council.</i>
The Earl of Caithness, <i>Vice-Pres.</i>	The Earl Granville, K.G., F.R.S., <i>Vice-Pres.</i>
Lord Eustace Cecil, M.P.	

The Earl Grosvenor.	Alderman Sir B. S. Phillips.
Mr. Hansard.	Sir Thomas Phillips, Q.C., F.G.S., <i>Vice-Pres., Chairman of the Council.</i>
G. W. Hastings.	The Duke of Richmond.
Wm. Hawes, F.G.S., <i>Vice-Pres.</i>	Rev. W. Rogers.
J. Pope Hennessy.	The Marquis of Salisbury, K.G., <i>Vice-Pres.</i>
Sir Rowland Hill, K.C.B.	Titus Salt.
Chandos Wren Hoskyns, <i>Vice-Pres.</i>	Sir Francis Sandford, <i>Vice-Pres.</i>
T. Hughes, M.P.	Colonel Scott, R.E., <i>Memb. of Council.</i>
Blanchard Jerrold.	The Earl of Shaftesbury.
Rev. C. Kingsley.	Benjamin Shaw, <i>Memb. of Council.</i>
Hon. A. F. Kinnaird, M.P.	Sir J. P. Kay Shuttleworth, Bart., <i>Vice-Pres.</i>
Lord Henry G. Lennox, M.P., <i>Vice-Pres.</i>	S. Smiles.
The Bishop of London.	Seymour Teulon, <i>Treasurer.</i>
The Sheriffs of London and Middlesex.	Thomas Twining, <i>Vice-Pres.</i>
Rt. Hon. Robt. Lowe, M.P.	Alderman Waterlow, <i>Memb. of Council.</i>
Lord Lyttelton, <i>Vice-Pres.</i>	E. W. Watkin, M.P.
Archbishop Manning.	G. Watts.
Henry Maudslay, <i>Memb. of Council.</i>	George F. Wilson, F.R.S., <i>Memb. of Council.</i>
Rev. F. D. Maurice.	Vice-Chancellor Sir Wm. Page Wood, F.R.S., <i>Vice-Pres.</i>
The Lord Mayor.	
J. Stuart Mill, M.P.	
Rev. Dr. Miller.	
The Bishop of Oxford.	
J. Slaney Pakington, <i>Memb. of Council.</i>	
Right Hon. Sir John S. Pakington, Bart., M.P., <i>Vice-Pres.</i>	

The Council, on the recommendation of the Committee, have passed the following minute:—

At the last and former International Exhibitions held in this country, arrangements were made by the French Government to facilitate the visits of skilled artisans, and interesting reports on the exhibitions were made by them to their government. Believing that such visits on the part of skilled workmen to these great international displays not only exercise a beneficial influence upon the men themselves, but also upon the progress of industry in the country to which they belong, the Council of the Society of Arts have resolved to raise a fund to be employed in aiding a limited number of English workmen to proceed to Paris for the purpose of studying the present French Exhibition.

To carry this object into effect, they have agreed on the following plan:—

1st. That a number of selected workmen (the number to depend on the amount of funds at the disposal of the Council) shall be assisted to proceed to and remain in Paris a sufficient time (say three weeks), for the purpose of making a careful study of the exhibition, and of such factories and workshops as they may desire to visit.

2nd. That every man so assisted shall, on his return, make a report to the Society of what he has observed during his stay, in reference to the special industry in which he is engaged, and that it be made a condition of the grant to each man that one-third of the amount be retained until his report shall be supplied to the Society.

3rd. The Council think it will be undesirable to fix the exact time for, or to prescribe the duration of, these visits, or to interfere with any of the arrangements the men may desire to make for their own accommodation; but, in order that they may take advantage of the facilities provided by the Commission organised by the French Government for the study of the exhibition, the men will be placed in communication with that Commission on their arrival in Paris.

4th. A considerable sum will be required satisfactorily to accomplish the important object undertaken by the Society, and, in order to raise these funds, the Council have determined to appeal to the members of the Society,

who must be interested in the successful results of this movement, in the belief that they will not hesitate to join in a subscription for the furtherance of the undertaking; and they propose at the same time to communicate with the various Chambers of Commerce, inviting their counsel and support. The Council have decided to commence the subscription by a vote of one hundred guineas from the funds of the Society.

The following report has been made by the Secretary:—

To the Council of the Society for the Encouragement of Arts, Manufactures, and Commerce.

GENTLEMEN,—In compliance with the directions of the Council, I proceeded to Paris for the purpose of ascertaining what arrangements were likely to be available with regard to the lodging and boarding of such artisans as might visit Paris under the auspices of the Society.

I soon found, from inquiries made in various quarters, that little information of any value, as to the probable cost of private lodgings generally, or as to what lodgings would probably be available, was likely to be obtained; indeed, any figures or statements under this head at that time were not likely to be of any use, or in any way to be a guide to the deliberations of the Committee.

The prices asked at that time were exceptionally high, but there was every reason to believe that a reaction would take place, and that, after the exhibition had been open a short time, these prices would diminish.

Mr. Cook, the well-known excursionist, I found was prepared to contract for the lodging and boarding of 50 artisans per week, supplying two substantial meat meals per diem, for 5s. per head per day. I subsequently placed myself in communication with M. Le Play, the General Commissioner of the Exhibition, who informed me that a Special Commission had been formed, under a ministerial decree, for effecting the very objects I was in search of, and he gave me a special letter of introduction to the Chairman of that Commission, Mons. Devinck, formerly President of the Tribunal of Commerce for the Department of the Seine, and I had two interviews with that gentleman. It appears that the object of this Commission is to raise, by subscription or otherwise, funds for facilitating the visits to the exhibition of foremen, workmen, or labourers connected with industrial and agricultural pursuits, and for enabling them to study the exhibition in all its aspects.

The Commission proposes to raise a fund (to which the Emperor and Empress have subscribed largely) in order to provide lodging and board at a cheap rate for artisans, to assist workpeople in their travelling to and from Paris, and to supply gratuitously medical aid in case of sickness. Mons. Devinck informed me that the Commission expected to have under their control five thousand beds. These are situated in different parts of Paris and the outskirts. They have had placed at their disposal large buildings and barracks, and some of a temporary character have been specially erected in the neighbourhood of the exhibition, which will be furnished suitably for the purpose, and beds will be arranged in the rooms, four and upwards in each room. In one of the buildings it is said that several hundred beds will be placed in one room.

Arrangements are made for breakfasts and dinners on a large scale and at a cheap rate, in a building erected for the purpose, with access to the Champ de Mars, where 1,000 persons can take refreshments at one time.

These arrangements, more especially those for aiding workmen gratuitously in their travelling expenses, were intended for French workmen, but at the same time all the organisation of the Commission is intended to be available for the workmen of other countries.

It is also intended that guides, speaking English and such other languages as may be necessary, shall be provided to conduct the men over such workshops as they may wish to visit. M. Devinck stated that on receiving

notice a sufficient time beforehand, the Commission would be prepared to provide lodging for such men as might be sent over and recommended to their consideration by the Society of Arts, at a payment of one franc per night per head. Their breakfasts—a substantial meal of meat—and dinners would be obtainable in the building I have before named, at one franc per head for each meal.—I am, &c.,

P. LE NEVE FOSTER, Secretary.

P.S.—Since writing the above, I have received the following tariff of prices at the restaurant referred to in my letter:—

GRAND RESTAURANT OMNIBUS, PARC DE L'EXPOSITION (AVENUE LAMOTTE-PIQUET).

Prix des objets de consommation.

Pain	0fr. 10c.
Vin, le carafon	0 15
Bière, la chope	0 25
Bouillon	0 15
Potage	0 20
Bœuf	0 25
Légumes	0 20
Fromage	0 15
Café avec eau-de-vie	0 30
Roti avec légumes	0 40

On peut demander un seul des objets de consommation ci-dessus mentionnés.

Le consommateur, en apportant son pain, peut se procurer pour 0fr. 40c. l'ordinaire (bouillon et bœuf).

Members are invited to aid the Council in this undertaking by subscriptions, which should be forwarded to the Financial Officer at the Society's house.

The Council have received offers of co-operation from a Committee for promoting cheap excursions to the Exhibition, formed under the auspices of the "Working Men's Club and Institute Union," and of which Mr. A. H. Layard, M.P., is President, and Mr. Hodgson Pratt, Vice-President. A deputation from this Committee, consisting of Mr. Hodgson Pratt, Mr. W. Glazier, Mr. Paterson, and Mr. W. O. Pocklington, Secretary to the Committee, has had an interview with the Chairman of the Council and Mr. W. Hawes on the subject.

SUBSCRIPTIONS.

The Lady-day subscriptions are due, and should be forwarded by cheque or Post-office order, crossed "Coutts and Co.," and made payable to Mr. Samuel Thomas Davenport, Financial Officer.

Proceedings of the Society.

FOOD COMMITTEE.

The Sub-Committee on meat met on Wednesday, the 27th March. Present: Benjamin Shaw, Esq., in the chair. Messrs. Harry Chester, C. S. Read, M.P., J. Ware, and E. Wilson.

In reply to questions from the Chairman and the members of the committee,

Mr. A. SLATER, who had kindly attended at the request of the Committee, said—I am a butcher, carrying on a large business in the west-end of London, and am well ac-

quainted with the meat trade ; not only a large number of animals are slaughtered in my establishment, but I buy largely meat slaughtered in the country. Meat, in order to travel in good order, must have been killed some short time before it is packed. It must be what we call "set." The time required for this differs at different seasons of the year ; it will soon get set in cold weather, but in warm weather I should certainly give it one night ; we kill as late in the day as possible in summer time, in order to get rid of the animal heat and moisture during the night.

Mr. CHESTER—Do you use any artificial means for drying it ?

Mr. SLATER—No ; we merely let it have air. If we want to use the meat quickly in summer time we should cut it up as soon as we could after it was killed ; sometimes it happens that on a Saturday night poor people want their piece of meat for Sunday, and we kill a number of sheep in sultry weather always on Saturday night for poor people, because they have no convenience for keeping it. I have several places of business, one at Kensington, one in Jermyn-street, one in Piccadilly, but I kill only at Kensington.

Mr. CHESTER—Did you find there was any considerable difficulty in carrying on your business since the regulations which have been imposed by the Government on the movement of cattle consequent on the cattle plague ?

Mr. SLATER—I did at first. The difficulty was, I could not get the dead meat up regularly. For instance, I had bought a lot of meat from one, and sent for it to come to town on Tuesday ; another, to let it come on Wednesday, and another on Thursday ; up came all sorts of excuses ; they were very sorry they could not get it butchered ; for two or three days I was without meat, the third day I got the whole lot up at once. I do not, however, say, kill everything in London ; but I do not think a butcher's business can in summer time be carried on with any advantage to the public, unless we have our own slaughter-houses. The dead meat which I buy comes from all parts. Meat from Scotland comes in better condition than from any other part. We cannot, however, always rely on its coming in good condition. I do not know how long it is on the journey from Scotland, because in some instances it comes by the ordinary traffic, whilst in some instances they have special trains for it. I believe they have special arrangements on railways for the carriage of dead meat, but I think a salesman would give you better information about that. I believe, if it is not conveyed by a certain time from some places, that the railways are subject to a penalty, but that is only from some places ; there are no special vans for meat ; it is tumbled in any way.

Mr. CHESTER—Do you think the meat is injured owing to the manner of loading it ?

Mr. SLATER—Certainly ; of course, in hot weather, if you put a lot of meat together it injures it, for where it rubs together you find a lather like soap, but when it is packed in canvas you do not notice that. If I killed at a very distant place instead of Kensington, I should like to have a carriage built on purpose, so that when I had killed the meat I could put it in that carriage, and hang it as close as I could pack it. I would send it to the railway at once, so that there should be no handling of the meat. I should not care to pack it in canvas if I had a carriage built on purpose, as I would hang it up warm as soon as I killed it, so as not to have it touched, at least until I got it to the shop. I would quarter the carcasses of beef, but not divide them further ; I should keep them in sides as long as I could ; on a railway of course I could not do this—the carriage would not be high enough, and I should have to cut them—to quarter them—but I would not cut them smaller than quarters. I think that is the best way of sending meat. There is considerable loss to a butcher from change of weather, but we lose more in winter than in summer ; the wind wastes it a good

deal—more juices dry out of the meat ; there is an invisible waste always going on in meat, particularly in wind and frost. The object of admitting air after the meat is killed is for coolness, not for any other object. The absence of air is of no importance, provided coolness is obtained ; the air is used simply as a means of producing cold, but damp must be avoided. The waste I spoke of just now arises from hanging in the air ; any contrivance which would keep the meat sweet, without subjecting it to a current of air would be a great gain in my business, supposing I had room for the purpose.

Mr. CHESTER—Professor Gamgee believes that meat killed according to his plan, will keep six weeks, even without being afterwards immersed in any preservative gas.

Mr. SLATER—I do not know what is lost in weight by evaporation ; I have never tried ; mutton, however, wastes more than beef. There is no loss to the buyer at all, because it is only the water that is driven off ; there is a loss to the butcher. This loss, in winter, is simply the loss of weight, and the loss in summer is the absolute destruction of meat from being putrid.

Mr. WILSON—What becomes of the offal—the hearts, and things of that kind ? Do you find a sale for them ?

Mr. SLATER—Yes ; they sell very readily. In the winter time they sell very well ; in summer time, of course, we can never be over-nice about price ; if anybody offers a fair and reasonable price they are sold.

Mr. WILSON—On an average, through the year, how much per pound ?

Mr. SLATER—We do not sell them by the pound, but by the lump. I will, however, let you know ; I will go carefully through all, and weigh them. I sell them all at Kensington. I encourage people there to come for them ; at the other shops, not killing there, the people have never had that sort of thing exposed, or rarely, if ever ; and therefore they are not asked for.

Mr. MICHAEL—Do you make any arrangement for getting rid of the meat when it gets unsaleable as first quality, or is it entire waste ?

Mr. SLATER—We watch it carefully, that is all.

Mr. MICHAEL—What do you do supposing it is just beginning to turn, so that you cannot sell it to first-class customers ; is there any plan of selling that to another class of customers ?

Mr. SLATER—We do not expose it for sale at all. We boil it to get the fat and we save the bones. The meat is absolute waste. That is generally the plan adopted. It is not sold as a damaged article to make soup of, or for any other purpose. If in the market any meat is putrid and bad, the inspectors condemn it, and they take it away and boil it, because the fat is just as good for the tallow-chandlers, whether the meat is putrid or sweet, and the meat is buried, I believe. Supposing I have a very large stock, and I find, on looking over that stock at night, that some of it is beginning to lose its quality, there is no means of disposing of it at all. There is no class of customers on the look-out for that. There may be a low class of butchers who would buy it, but that is very exceptional. There is no organised system of getting this from the first-class butchers. I do not know of any plan adopted of selling the meat at a lower price, when it has lost its first quality, to a lower class of customers. It is either sweet and wholesome, or bad. I can make no distinction. There is no intermediate state. In fact, it is a butcher's business to keep it just long enough, and not too long. It cannot be used by cutting off the external surface. It generally goes inside first. It goes first at the kernels and veins ; in summer time we open all the kernels, and take them out, or let the air into them. If the kernels were removed, sometimes a leg of mutton would be good which otherwise would not.

Mr. WILSON—In the case of the large quantity of dead meat that comes up from the country, does the offal of that dead meat come up, or is it sold where the slaughter takes place ?

Mr. SLATER—Some comes up, and some is sold at the place of slaughtering. Nothing like half comes up; it is only from some districts, where they have no sale for it, that it comes.

Mr. CHESTER—Is there any difficulty, in consequence of the butcher's joints being cut in a different way?

Mr. SLATER—Every county and town has a different way of cutting up meat, and you may as well try to change a man's name as to alter it. I think the Scotchmen have at last been persuaded to take out the kidney fat. I asked a salesman "why don't you write to these people to take the kidneys out of these sheep, for if they would take them out the meat would keep?" and he said—"You have only to ask a man to alter his plan to lose his business." But some of them gave in to the sensible plan of taking out the kidney, or even removing it altogether, and the meat is good.

Mr. SHAW—Have you heard anything of the plan of bringing meat from the south of Ireland, fresh meat, not salt, by means of fast steamers?

Mr. SLATER—I have heard that Mr. Wood, of the Great Western Railway, was very sanguine about it, but I do not know whether it will be remunerative.

Mr. CHESTER—Does much bad meat come from Holland?

Mr. SLATER—Not much. It depends altogether on the passage and the way in which it is brought. If it is brought from Holland not properly packed, and there is a bad passage, it ships a lot of water, and nothing is worse than sea-water for meat. Some comes from Scotland by rail, and some by boat, and that which comes by boat is not so easily disposed of.

Mr. SHAW—You always know where meat comes from?

Mr. SLATER—Yes; I know exactly, by the appearance, what country it comes from, and all about it, by the shape of the meat. Some meat came from Holland last year in very good order indeed, some came in very bad order; it depends very much how it is managed. We have had very good meat from Holland this year.

Mr. CHESTER—Do you do much in the way of salting meat?

Mr. SLATER—Not with any idea of salting it for preservation. I merely salt for my own trade.

Mr. CHESTER—What is the loss of weight in meat that has been salted?

Mr. SLATER—I never tried. It would depend on whether it was left to drain.

Mr. MICHAEL—Under any circumstances the salt meat must lose a great quantity of juice, which is turned into brine. Do you adopt the dry principle?

Mr. SLATER—There is dry salting; some people prefer it. If you dry salt meat it will make a gravy just the same. I never tried the difference between the wet and dry salting. I will try it. I will take two pieces, and dry salt one and wet salt the other, and give them both the same time.

Mr. CHESTER—Is there any difference in the amount of difficulty in managing the meat which you kill yourself and that killed in the country?

Mr. SLATER—Generally, the country butchers are very clean dressers. There is not much difficulty in that way.

Mr. CHESTER—Do you know how long it has been killed; and when you get it is there any certificate, or any thing of that sort?

Mr. SLATER—None at all; you can tell by the appearance for a day or two, but after that you cannot. Scotch meat is better, on account of being killed in a cooler climate; and besides this, the cattle are not killed after a long railway journey, and they are in a quiet state. A great deal depends upon what state the animal is in when he is killed whether the meat will keep.

Mr. READ—What do you generally find is the fact as to meat killed in the country in a quiet way, and the cattle you have here from the London market after they have gone a long journey?

Mr. SLATER—I keep them at home a short time before I kill them; I do not kill them what we call "off the drift;" if killed as soon as they arrived the meat would not keep. I keep them until the next day, and that is sufficient. They soon get quiet and settle down.

Mr. SHAW—I understand you to say that meat cannot be brought up in a good condition in the summer, on account of the heat. If that mode of transit could be improved, that objection would be met?

Mr. SLATER—Certainly.

Mr. CHESTER—If there were special vans constructed, admitting air but not dust, and kept at a low temperature, either by a small quantity of ice or by means of evaporation, might not meat come in very good condition a long way?

Mr. SLATER—I do not think ice good for meat. I have an ice-house myself; and I used it for two or three seasons, but last season I dispensed with it, because the action of the air alters the appearance of the meat directly you bring it out. You have a joint of meat and you bring it out to all appearance beautiful and firm, and clean, as when you first put it in; it remains in the shop say for an hour, and you then see a sweat on it, and it takes up every particle of dust and everything which touches it, and when it gets to the customer's house it is objected to.

Mr. CHESTER—What temperature is your ice-house?

Mr. SLATER—About 40 or 45 degrees. If by any artificial means in the vans you could create a cool air, it would no doubt be beneficial.

Mr. CHESTER—Does your principal supply of live meat come consigned to you, or do you go into the market and buy it?

Mr. SLATER—I get a great deal consigned to me, and I go into the market and buy what I want besides. It comes from different gentlemen, not graziers in business, but gentlemen who have so many bullocks and so many sheep. They write and say they have so many ready, and they are going to send them up.

Mr. SHAW—It was said, after the passing of the free trade measures of Sir Robert Peel, that they had not produced any effect on the price of meat, for this reason, that foreign meat did not compete with the best English meat, and was not used for the tables of persons who wanted the best articles, but that a new class of meat consumers were brought into existence. Is that your opinion?

Mr. SLATER—It is. I do not think foreign meat will ever compete with first-class English meat, but it will set so much more first-class meat at liberty, so to speak, for the higher tables. In time we may get better meat from abroad, when herds are improved, and they are better fattened. There is nothing in the transit which necessarily makes the meat inferior if properly managed. I certainly do not like beasts coming from abroad, from the mere fact of their having had a sea voyage. I do not think it does them any good; I think it affects a bullock or a sheep the same as it does a human being. The dead meat comes better. I should rather buy it dead than alive.

Mr. WILSON—Do you think, from your experience, that the meat can be sufficiently ventilated during a long railway transit without the accumulation of dust to any disagreeable extent?

Mr. SLATER—I do not think it can, unless a van were so constructed as to completely exclude dust, and still let in air. Canvass sides would stop a great deal of it.

Mr. READ—When you said you did not like foreign cattle because they came by steamboat, of course that would apply to those which came by sea from Scotland and Ireland?

Mr. SLATER—They are as bad as foreigners.

Mr. READ—You think Irish cattle had better be killed there if possible, and sent dead?

Mr. SLATER—Yes; if they would come in a good state. The objection to the dead meat trade from Ireland would apply more in the summer than in the winter unless you

had a quick transit for it. There is no reason why meat coming from Ireland should not be as good as that coming from Scotland.

MR. WILSON.—Is there any tendency to the establishment of large slaughtering-houses, out of London, but short of a long railway transit? It seems to me that, with the difficulty of conveying dead meat, and the difficulty of slaughtering in London, it would follow that somebody would find it worth while to establish large slaughtering places at short distances out of London, and without involving a long railway journey. Is there any tendency in that direction?

MR. SLATER.—I think if you were to establish large slaughter-houses of that sort, and get rid of private slaughter-houses altogether, you would get two distinct trades. A butcher as he is now would not be a butcher then, he would be a purveyor of meat. I for one, if you did away with my private slaughter-house, would not kill at all. I would stand the chance of buying it dead. There is a great objection to have abattoirs by butchers. They like to have their private slaughter-houses; they object to slaughter-houses not under their own control. I would never buy another live animal, if I could not kill it at home. Of course an animal brought out of the field, from his own natural pasture, and killed quietly in a man's own slaughter-house, would be in a better state than if he were conveyed to London. Even when he is sent home to my place and kept a few days he does not recover the same degree of quality—he has lost a certain portion.

MR. READ.—But with regard to the question—if a bullock had to come a certain distance by rail to a certain great centre, it would be almost as bad as killing in London would it not?

MR. SLATER.—Yes.

Proceedings of Institutions.

EXAMINATIONS, 1867.—LIST OF LOCAL BOARDS.

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WILLENHALL.—Mr. J. C. Tildesley, Willenhall, *Correspondent*; Revs. G. H. Fisher, W. Fletcher, M. Hathaway, J. Stevens, Messrs. Ley, L. Chapelle, J. Bennett, J. Webb.

WOLVERHAMPTON (1).—Mr. J. N. Langley, Mowbray-house, Wolverhampton, *Correspondent*; Rev. J. H. Iles, Messrs. T. Beach, W. Y. Brevitt, W. M. Fuller, Herridge, Houlst, Butt.

WOLVERHAMPTON (2).—Mr. George Bidlake, *Correspondent*; Messrs. H. Gibbs, W. M. Fuller, W. Mitchell.

SOUTHERN COUNTIES ADULT EDUCATION SOCIETY.—Messrs. J. Floyer, M.P.; C. Raikes, Hon. and Rev. S. Best; Revs. Dacres Olivier, H. E. Ravenhill, R. FitzGerald; Rev. J. Monkhouse, Oakley, Basingstoke, *Secretary*.

STOCKSBRIDGE (SHEFFIELD).—Rev. H. Robertshaw; Mr. J. Hepworth, and Rev. H. Robertshaw, *Secretary*.

STOCKTON.—Messrs. Joshua Byers, J. Bennington, T. Crosby, T. Ainsworth, F. Sanderson, and T. W. Hornsby, *Secretary*.

SWINDON (New).—Mr. Joseph Armstrong, C.E., *President*; Messrs. Samuel Carlton, M.E., John Holmes, R. L. White, George F. Swinhoe, M.D., Geo. F. Ellis, J. Haydon, W. Ellis, J. H. Preece, and W. L. Fallows, 22, Bridge-street, New Swindon, or the Institution, *Honorary Secretary*.

THIRSK.—Revs. E. Jowett, H. Howard; Messrs. J. Rider, T. Alderwick, W. A. Bourne, T. Scott, and Richard D. Carter, *Secretary*.

WAKEFIELD.—The Rev. J. S. Eastmead, *Chairman*; Messrs. G. Mander, J. Binks, W. S. Banks, S. Bruce, Wm. Ash, and P. W. Paver, and William Ash, Mechanics' Institution, Wakefield, *Secretary*.

WATERFORD.—Dr. J. Caret, M.D., *Chairman*; Dr. J. F. Scott; Messrs. David Keogh, Woodward Mason, William Godbey, and Mr. James Budd, 5, King-street, Waterford, *Secretary*.

WELLINGBOROUGH.—Mr. Benj. Dulley, *Chairman*; Revs. H. V. Broughton, M.A., (Vicar), H. M. Roxby, M.A., J. F. Poulter, B.A., Messrs. William Dulley, jun., Wm. A. Rubbra, M. Reid Sharman, Edward Sharman, W. R. Harrington, and T. S. Curtis, *Hon. Secretary*.

WEST HARTLEPOOL.—Rev. H. J. Martin, Messrs. Isaac Bowes, James K. Anderson, Henry Casebourne, T. P. Brunton, Robinson Murray, William Hunter Fisher; Charles Townshend Casebourne, C.E., and John Legbourne, *Hon. Secretaries*.

WHITBY.—Rev. W. Keane, M.A., *Chairman*; Dr. Dowson; Rev. J. Owen; Messrs. Stonehouse, J. Bate, and W. G. Chiesman, *Secretary*.

WILSDEN (BINGLEY).—Rev. J. Parnaby; Messrs. Thomas Wadsworth, Abraham Ambler, Fras. Butterfield, and C. Petty, *Secretary*.

WOOLWICH ARSENAL.—Mr. Anderson, *Chairman*; Messrs. Oram, Fullom, Baker, Davidson, Tozer, Millard, Spiller, McKinlay, McGrath, and W. D. Keeble, Royal Laboratory, Royal Arsenal, Woolwich, *Secretary*.

WOOLWICH (ST. THOMAS' PAROCHIAL SCHOOLS).—Capt. R. Robertson, R.N., J.P., *Chairman*; Rev. A. De La Mare, M.A., Rector; Capt. A. Harrison, R.A.; Messrs. Jno. Carless, M.D., E. Brough Sargent, Jno. McArthur, Thales Pease, J. E. De La Mare, H. Shersby, G. Craig, and J. H. Norman, *Secretary*.

WORCESTERSHIRE UNION OF INSTITUTES.—John Slaney Pakington, Esq., *President*; Mr. F. Marcus, Worcester, *Secretary*.

„ **BEWDLEY AND WRIBBENHALL.**—Rev. J. Fortescue; Messrs. Nicholls and Birtwistle.

„ **BROMSGROVE.**—Messrs. W. Holyoake, Loughton, G. W. Gibson, Dodd, and Dunn.

„ **DROITWICH.**—Messrs. Jeacock and Causier.

„ **DUDLEY.**—Rev. R. Harper; Messrs. E. Hollier, J. Wood, J. F. Timmins, Minty, S. Waring, Crompton, Williams, J. Williams, and Bagshaw.

„ **EBLEY.**—Messrs. H. Webb, G. Hyatt, and H. Jefferies.

„ **EVESHAM.**—Rev. M. Wood; Messrs. H. New and W. Smith.

„ **HANLEY CASTLE.**—Rev. P. Kingsford; Messrs. A. Shewell and J. Holder.

„ **KIDDERMINSTER CHURCH OF ENGLAND MUTUAL IMPROVEMENT SOCIETY.**—Rev. W. Packe and Mr. Starr.

„ **KIDDERMINSTER MECHANICS' INSTITUTE.**—Messrs. H. Fawcett, J. Hopkins, and J. Greenwood.

„ **MALVERN.**—Mrs. Marsden and C. A. Mason; Mr. Fernie.

„ **REDDITCH.**—Messrs. V. Milward, G. C. Richards, and W. T. Heming.

„ **STOUBRIDGE ASSOCIATED INSTITUTES.**—Rev. D. Maginnis; Messrs. J. Taylor and R. Southall.

„ **STOUBRIDGE CHURCH OF ENGLAND INSTITUTE.**—Revs. H. Sherrard, J. J. Welch, and T. Williams; Messrs. E. W. Bernard, J. Gething, A. Freer, Goddard, W. Cooper, J. Doughty, T. W. Pardoe, and J. Fowler.

„ **STROUD.**—Messrs. S. S. Dickinson, J. Sibree, and W. Grist.

„ **WORCESTER CATHOLIC INSTITUTE.**—Rev. W. Waterworth; Messrs. J. Tree, F. Reeve, and W. Allen.

„ **WORCESTER CO-OPERATIVE READING-ROOM.**—Messrs. Smith and Conn.

„ **WORCESTER BIRDPORT FREE CHURCH MUTUAL IMPROVEMENT ASSOCIATION.**—Messrs. E. J. Lewis, J. P. Baylis, A. Whittall, Hurcombe, and E. Powell.

„ **YORK.**—Rev. H. V. Palmer, *Chairman*; Messrs. W. Gummerson, C. Sellers, H. Wilson, W. Bartle, J. Holtby, and Robert Hall, 8, Feasgate, York, *Secretary*.

THE AGRA EXHIBITION.

In continuation of the history of this exhibition of the North-West Provinces of India, which has already appeared in the *Journal* (see pp. 181 and 265), the following account of the closing is condensed from the local papers:—

The Lieutenant-Governor officially closed the Exhibition on Saturday, the 9th February, when the ceremony was performed in the open air. He made a speech, showing how these industrial exhibitions excite an interest among the natives of all countries. After a few lines of exordium, he proceeded to say:—

“To all those who have seen this exhibition, it will, I doubt not, have commended itself, by its intrinsic excellence, far more effectually than any words of mine could hope to do, but I do not fear to say that, looking at the means at our command, and the cost which has been incurred, no more effective effort has yet been made out of Europe, to realise the true objects of such an undertaking; for not only have we here an admirable collection of the most valuable and interesting articles in almost every department of industry and art, but we have also, in the buildings and grounds and general arrangements, a most striking and practical exposition of the almost magical facility and rapidity with which well-directed energy and skill can transform the common things around us, the raw materials, the barren plain, into the most harmonious combination of utility and ornamentation, which at once instruct and gratify the taste and the imagination, and by their practical usefulness materially contribute to the real progress of the objects we have in view. All honour, then, to those to whom we are so greatly indebted for the success which has now been achieved. To yourself and the gentlemen of the Central Committee I have already expressed my obligations. I desire now more particularly to thank Mr. Sibley for the design of the central building, which, with the skilful aid of Mr. Cole, has formed the principal feature of the exhibition, and has certainly excited as much wonder and interest in the minds of the natives, as the more costly contents which it protects. To the Board of Agency, E. I. R., I would express my acknowledgments for the readiness and liberality of their assistance. To the exhibition staff, who have borne the burden and heat of the day, whose labours have been as unceasing as their anxieties, and only to be gauged by the success which has attended them, no words of mine can adequately convey the commendation which I feel to be their due. Mr. Pollock, Colonel Rowlatt, Dr. Playfair, Mr. James Simson, Dr. Moir, Lieutenant Cole, Mr. Webb, and Mr. Adams, have each and all fulfilled the task entrusted to them with a degree of ability and success which cannot be too highly praised. Most cordially I thank them one and

all. I consider the general result of their efforts to be deserving of the highest prize for merit of all that has been here exhibited. I hope to convey to them hereafter a separate memento of the occasion; that highest prize, which is, I doubt not, that which they covet most, success, and the public appreciation and acknowledgment of that success, is theirs now. To Mr. Pollock belongs the merit of the chief executive control and organization of the whole exhibition. I desire especially to acknowledge and to thank him for the ability, unwearied perseverance and determination to succeed, the energy and forethought, the zeal and talent for organization which distinguished his management and assured our success. To Colonel Rowlatt we are most especially indebted for the wonderful creation of the gardens, the tasteful ornamentation of the grounds, the band-stand, fountains, and many other evidences of taste, and fertility of resource, to which so much of the success of the exhibition is due. Among other things, for the musical part of the opening ceremony, which added so much to our gratification, and for which I would take this opportunity of offering my grateful thanks to the ladies and gentlemen who joined so kindly and effectively in its execution. To Lieutenant Cole we are under the greatest obligations for the beauty of the Central Hall, its internal decorations and artistic embellishment, the tasteful machinery sheds, and many other parts of the arrangements. We have been most fortunate in obtaining his services, of which I hope we may have the opportunity of still further availing ourselves, for the purpose of securing a permanent record of this exhibition. I cannot speak too highly of what has been accomplished by these gentlemen in the unity and simplicity, the elegance and taste, of all the arrangements of the structures and the ground. I desire also here particularly to notice with marked commendation, the valuable and effective services of Mr. Robinson, the Secretary to the Municipal Commissioners of Agra. To the Municipal Commissioners, to the several members of the mercantile community of Agra, and to the Tuhseeldar, my acknowledgments are due for zealous and liberal aid. The assistance rendered by the Governments of Bombay, of Bengal, and of Madras, the very valuable contributions of Mr. Temple, from the Central Provinces, of Mr. Justice Phear, Dr. Hunter, and many others named in your opening address, deserve a more ample recognition than time will at present allow me to give them; to all I desire to return my most hearty thanks. To Mr. Temple and Mr. Dowleams we are more especially indebted for most effective aid, and I regret that circumstances have prevented our seeing them among us this day. I have to acknowledge the very hearty and able assistance which this exhibition has received from so many of my native friends, from the chiefs, the local committees and gentry generally of the country. I trust that they have not only been amused, but have profited by the exhibition. I am sensible that it has occasioned many of them an amount of trouble and expense, which must greatly enhance our estimate of the liberality with which most of them have supported it. It is most satisfactory to me to feel that this aid has not unfrequently been given from a true appreciation of our objects and a real desire for the practical advancement of the people."

The Lieutenant-Governor then proceeded to name those especially among the native gentlemen who were the most distinguished in aiding the undertaking, and concluded as follows:—

"I must add a few words upon the great success of the experiment of free admissions, upon which many doubts were entertained. Nothing could have been more orderly than the crowds which have daily flocked to the grounds, and it is remarkable how intelligent has been the appreciation generally of the exhibition; the wonderful crowds of women and of children evincing the perfect confidence of the people. There has been no mischief or damage of any kind. The practical remark

has been that they have not time enough to study what they see, a real drawback, which it will be my endeavour to remedy in some measure by a well-prepared catalogue of the articles, which may hereafter be translated into the vernacular. I will only add a few words of commendation of the police and sanitary arrangements, the former under the immediate direction of Captain Dennehy. All have been most excellent, and reflect the highest credit upon those who have organised them. I believe there has not been a single case of loss of property. And now, before concluding, I must say a few words of acknowledgment to all around me, and to the visitors generally, for the large measure in which they have contributed by their presence and demeanor to the success of the exhibition. Hitherto on such occasions the difficulty has been to get the people to come. Now all press in of their own accord. There have been no complaints of any kind; on the contrary, I am told that all are thoroughly satisfied, and speak in high terms of the courtesy and consideration with which they have been treated. I regret that our meeting has been so brief. I trust, however, that while many have benefited, all have been gratified by what they have seen during the past week, and that they will retain a pleasant recollection of this exhibition. Such an event is not likely to recur in these provinces for some years to come—local associations will be left to work up to the present model. I trust, however, that the next that may be held, whether organised by government, or by private enterprise, may as much excel the present as this surpasses previous efforts; but, however that may be, it cannot, I think, prove more creditable to those who execute it, or more successful in its immediate effects. I now declare this Exhibition closed."

OPENING OF PUBLIC AND PRIVATE COLLECTIONS DURING THE PARIS EXHIBITION.

The Museum of Antiquities in the Louvre, at least that portion of it which is contained in the ancient apartments of Anne of Austria, beneath the Galerie d'Apollon, has been completely renovated and re-arranged, and its opening has been announced.

The new library and reading-rooms of the Bibliothèque Imperiale are finished, or nearly so, and to be opened during the present month. By the new arrangement there will be a common reading-room for the public, open to all the world, according to the practice of this institution, and a second reading-room, with much greater facilities for reference and study, for men of letters and students. The innovation will present a subject deserving of study and consideration, for the giving of more facilities to literary men, without detracting from those of the public, is a problem that is well worth the trouble of solving.

Prince Napoleon throws open his artistic collections in the Palais Royal to the public five days a week, during the exhibition season; cards of admission to be obtained by application in writing, addressed as follows:—"à M. Hubaine, secrétaire particulier de Son Altesse Impériale;" or, "à M. Brançon, intendant, Palais Royal, cour de l'Horloge."

The announcement of the opening of the museum of arms and ancient armour, lately formed in the restored château of Pierrefonds, is confirmed. The early part of May is the time fixed upon. Excursion trains will be arranged for the same period. A visit to Pierrefonds will have other attractions besides the new museum; the Château is one of the feudal castles of France, restored by M. Viollet-le-Duc, and the country around is fine.

The great new park of the Buttes Chaumont was opened on the 1st inst. This pleasure-ground is of large extent, and occupies the site of the old plaster quarries, the irregularities of which have been turned to picturesque account. The chief objects of interest are a reproduction of the Temple of the Sibyl, and a fine waterfall, lakes, and canal; there are five bridges, one a

beautiful light specimen, on the suspension principle, three restaurants, six ornamental houses and lodges for the keepers, some of them decorated with *faïences*, grottos, three plateaux, commanding fine views, and a mound planted with fine cedars. The circular railway passes through the new park.

Fine Arts.

ART AT THE PARIS EXHIBITION.—The picture galleries contain for the most part a fair and full representation of national schools throughout the world. Four quarters of the globe and twenty-four countries are present. France, being at home, has peculiar facilities, and exhibits at her very best. Still, since the last Universal Exposition, in 1855, she has lost several great painters, whose pictures are now specially missed. Ary Scheffer, Ingres, Delaroche, Delacroix, Horace Vernet, Troyon, and Decamps can no longer be present in International Exhibitions. As a consequence, the character of French art is changed. Instead of pictures large and life-size, in place of works after the prescriptive type of high and historic styles, the tendency now is to compositions of romance and fancy. The most prominent exceptions come under the names of Yvons and Pils, who celebrate the glory and martial deeds of the empire. The English public have at home, in the galleries of Mr. Gambart and Mr. Wallis, become acquainted with the leading traits of the existing French school. Still, seldom have been collected at one time so many *chefs-d'œuvre* of leading contemporary painters. By Rosa Bonheur there are eleven pictures, by Gérôme seven, by Meissonier eleven, by Frère eight, by Hamon also eight, by the late M. Troyon seven, by Zeim four. These names and numbers indicate that the 625 pictures which constitute the gallery represent the French school in its strength and versatility. Two hundred and thirty painters, each of whom has already acquired acknowledged position, are present. Nevertheless, perhaps, as a grand national display the effect is a little scattered when compared with the Universal Exposition in 1855. Then were concentrated in separate rooms the noble and vast works of Ingres and Horace Vernet. No such climax is now reached. Nevertheless, it will be admitted that the French courts contain a full and faithful register of the national school, and that they present to the student a rare opportunity of forming a just judgment on the characteristics of French art. The same, too, may, with little reservation, be said of the choice though small collection of English pictures. Many names, it is true, are absent. Two leading painters, for example, who represent landscape art in the Royal Academy—Creswick and Lee—are not represented. Still, in the works of Linnell, father and sons, of Stanfield, Graham, and MacCallum, the supremacy of English landscape is fairly maintained. In other departments are recognised such well-known works as Elmore's "Tuileries," Phillip's "Gloria," or dance over a death, "Poole's "Song of Philomene on the borders of the beautiful lake," Millais's "Romans quitting Britain," Lewis's "Coptic-court, Cairo," O'Neil's "Eastward, Ho!" Armitage's "Queen Esther," Wallis's "Death of Chatterton," and Hunt's "Afterglow, Egypt." With the exception of the last, all these pictures were first known to the public in the Royal Academy. The art of water-colour painting, in which England is supposed to be supreme, is also tolerably represented, though, from the reluctance of owners to allow valued works to leave the country, far less fully than in London in 1862, or at the Art Treasures, Manchester. Well-selected works have, notwithstanding, been obtained of many leading masters, such as Cox, Davidson, Gilbert, Haag, Haghe, Holland, W. Hunt, Smallfield, Tayler, Tidey, Topham. The total number of oil pictures and water-colour drawings in the English

court is 300, or less than one-half the total in the French; this, if numbers were the only criterion, would give to England an adequate proportion, seeing that France occupies not less than one-half of the entire building. The large size, however, of French pictures generally still further gives to France the advantage over any other nation. The preceding data will indicate the extent, variety, and value of the contents of the picture galleries. We shall add from time to time further evidence of the extraordinary art riches and resources of an exhibition which, because found in an unfinished state, has not been appreciated at its high worth.

Manufactures.

DIAMOND BORING MACHINE.—The diamond has been frequently used for turning up porphyry and other hard stones; the late M. Leschot, in 1862, took out a patent for the employment of this mineral in boring hard rocks. Every one knows the difficulty of boring stone of an exceptional hardness with ordinary tools. The work is excessively slow, and it is with difficulty a passage is opened. It appears that the employment of the diamond has completely changed this state of things, and has allowed working with rapidity in circumstances where the employment of ordinary means would have rendered the work to be accomplished almost impossible. In following the process of M. Leschot, M. Pichet has constructed a boring machine of great power. It is composed of a steel ring set with black diamonds. In order to use this apparatus it is only necessary to make the ring rotate, and press against the rock to be perforated. It is easy to understand the action of the apparatus; the diamond grinds the stone, and consequently, by means of its circular motion, a cylindrical ring of rock is reduced to powder. A current of water carries away the fragments of the boring as quickly as they are produced, so that the work is proceeded with very rapidly. The borer does not hollow out a hole in the stone, but a cylindrical ring, the adhering core of rock then remaining in the tube, can easily be detached by the blow of a mallet. It is easy to see that, only having to powder a circular ring of rock, the motive power need not be considerable, and the length of the operation would not be great. M. Pichet's apparatus is now being employed at the tunnel of Port Vendres; it is moved by hydraulic power, and by its use it is said that 1·2 metre of rock is pierced per hour. The black diamond employed for this operation wears but little, and when it can be no longer used for the purpose it is reduced to powder, and employed in polishing precious stones.

COAL MINES IN POLAND.—Borings are continued the whole length of the railway lines in the kingdom of Poland; these operations, which have already led to the discovery of four seams of coal, have now obtained a still further success, as a fifth seam has just been found at Dombroff, and a sixth in the forest of Stohemeschiton.

Commerce.

TEA CULTIVATION IN INDIA.—The unsatisfactory state of tea cultivation in India at the present day (says the *Produce Markets Review*), and the unfortunate condition of the planters, after having been freely commented upon in all quarters, seem at last to have come under the notice of the Indian Government; and acting upon certain representations which have been made to him, the Lieutenant-Governor of Bengal proposes that some concession should be held out to the tea-planters, in order to enable them to retrieve in some measure the losses which they have been incurring for some years past. The remedy suggested, "that purchasers of lots under Waste Land

Rules, who have not completed the payment of the purchase money, should be allowed to throw up one or more of their lots, and to carry the amounts already paid as instalments to the credit of other lots of waste land," does not seem sufficient either to obviate the real difficulties with which the question is beset, or to afford to planters the relief they so much need. Indeed the whole measure is characterised by a hesitating and uncertain irrelevancy which is calculated to call forth the opposition of all parties. Many aver that, as a private speculation, tea-planting should be left to take its chance of commercial success with all other schemes carried on by individuals; but we would suggest that the very nature of the undertaking elevates it from the list of private enterprises to the dignity of a question in which an almost national interest is created. Those, however, who find fault with the insufficient character of the relief in prospect, should remember that in this apparently small instalment a principle is involved, and that when once the condition of the planter is made the subject of official inquiry, the labour question and its direct bearing on the planter's interests are necessarily involved. Hitherto the sympathies of the Indian Government, so far as they could be said to be enlisted at all, have undoubtedly been on the side of the "coolies;" and, whilst nothing was too bad to be laid at the door of the employers of labour, everything was to be done in favour of the employed. Laws were passed; special officers appointed; extraordinary means were taken—all to secure the well-being and prosperity of the "coolie;" whilst the planter—it was tacitly inferred—might safely be allowed to trust to his own resources so far as regarded his tea-planting career, and be left to make the best shift he could against the overwhelming odds of a race of labourers steadily backed by the whole weight of Government authority. The turn of events during the last few years has shown how widely the Government has erred in this matter, and how impotent for the general good all protective measures must be designed to elevate one class at the expense of any other. These views, as we learn from the *Calcutta Englishman*, have lately been put forward with great cogency by the commissioner appointed by the Bengal Government to inquire into the condition of coolie labour in Assam and Cachar. "Had the commissioner," remarks the *Calcutta Englishman*, "been a planter himself, he could not have expressed himself in stronger language or more to the purpose; in almost every paragraph he condemns legislative interference." The commissioner avers that the labourer should be treated as a free agent, and that he ought to be left to make his own terms with the planter, whose real interest it would always be to maintain his labourers in the highest degree of health and efficiency. On these grounds he would recommend the unconditional repeal of all laws regulating the rate of wages, conditions of living, &c., leaving these matters to be settled by contract between the parties themselves without any official interference or supervision. "You can no more make tea grow," he remarks, "by Act of Parliament, then you can make an unwilling or unworthy man provide for the proper discharge of his duty by penal laws." As soon as these views are understood and accepted by the Indian Government the planters will have some prospect before them of recovering their losses; but it is useless to expect any improvement whilst the impediments to their free course are so eagerly taken up, and so sedulously fostered by those who hold the rule and the prosperity of India in their hands.

Colonies.

BORDER DUTIES, VICTORIA AND NEW SOUTH WALES.—The vexed question of these duties has been arranged by an intercolonial conference held at Melbourne. The Victorian Government have undertaken to pay New South Wales £60,000 per annum for five years, and

£6,800 arrears due since 1864. Free trade in the products of either colony is also guaranteed while the treaty is in force. By this new arrangement the Victorian merchants are secured the import and export trade of the whole of the Riverina, without that amount of competition with South Australia which they have hitherto had to compete with.

NEW SOUTH WALES REVENUE.—The total revenue of this colony for the year 1866, exclusive of loans and special receipts, was £2,038,079. As there are about 400,000 people in the colony, this shows that the revenue obtained is at the rate of about five pounds a head. The increase on that of last year is £263,904. Out of this no less than £248,636 is due to Customs alone, so that the other sources of revenue have had very little to do with the restoration of the public credit. The Customs revenue gives a shade over £2 per head of all the population. Two-fifths of the whole, therefore, comes from it, and indeed, with the exception of licenses, this is about all that can be properly called taxation; and of this amount very nearly one-half is duty on intoxicating liquors. The new tariff has increased the revenue from spirits, and also from ale and beer. The taxes on rice and dried fruits also bring in nearly £20,000 a year. The duties on tea and sugar yielded £96,000, and this was £30,000 below the yield of the previous year, and as much below the estimate—a fact due to goods being taken out of bond in anticipation of an enhancement of duty. The revenue of the Post-office is £77,000, which is an increase of £6,000 on the revenue for 1865. The railway receipts were £176,246, which is an increase of nearly £13,000 on the return of the previous year, and an advance of over £4,000 on the estimate. The telegraph receipts are nearly £34,000, which is somewhat over the estimate, and an advance of over £3,000 on the previous year. The total disbursements for the year amounted to £2,100,820, being a little over the income.

GOLD DISCOVERY IN QUEENSLAND.—The government of Queensland has offered a reward of three thousand pounds to any person or persons who shall, individually or jointly, make discovery of a gold field situate at least twenty miles distant from any gold field already proclaimed within the colony. Such reward will be payable as soon as it shall be shown that the field so discovered has attracted to it, and supported for the space of six months, a population of not less than 3,000 persons.

PROGRESS OF NEW SOUTH WALES.—The progress of the colony of New South Wales during the last twenty years has been far greater than was anticipated at the commencement of it. In the year 1846 the population was less than 200,000, which included the districts of Port Phillip and Moreton Bay. The following are some statistics. There were in

	1846.	1866.
Schools.....	394	1,069
Scholars	19,033	53,453
Mills.....	138	175
General	124	—
Manufactories....	—	2,133
Tillage area.....	183,360 acres	379,254 acres
Horses	88,126	282,587
Horned cattle	1,430,736	1,961,905
Sheep	7,906,811	8,132,511

Twenty years ago New South Wales was unknown as a gold-producing country, but it now exports that metal to the extent of £2,647,668. This state of prosperity was indeed in the second year of its auriferous development, and it has not yet in any year much exceeded the amount then reached; but during the next twenty years a greater increase may be expected, as machinery is increasing, and the mining appliances are at present rude and wasteful. There is an immense increase in the expenses. In 1846 this was £290,000, and it had in 1866, reached £2,314,794. This latter sum includes the loan expenditure, but it shows how large a sum the government annually expends, being at the rate of

nearly £6 per head of the population. Even without the loan expenses the expenditure exceeds £4 per head.

WINE-GROWING IN VICTORIA.—The consumption of colonial wine is rapidly increasing, and if the next vintage proves equal to the present anticipations, colonial wine will be placed in the market at a price and of a quality that only France can compete with. In 1866 the wine cultivation increased from 1,307 acres to 18,063 acres. The number of vines of three years and upwards increased from 3,109,735 to 3,781,169, thus 671,414 additional vines came into bearing during the year. The grapes gathered amounted to 49,749 cwt., of which 31,686 cwt. were made into wine or brandy, producing 176,959 gallons of the former, and 795 of the latter. The land under other crops last year amounted to 1,705 acres, against 1,264 in 1865. The area under garden cultivation, was 6,654, against 6,627 acres; and orchards 3,419 acres, against 2,364 acres in 1865.

Obituary.

M. HITTORF, an architect of deserved reputation, and many years occupied with government works, died recently in Paris at the age of 74. He was pupil of Percier and Belanger, and made himself remarked by his attempts to restore polychromatic architecture. His principal works of this class are the church of St. Vincent de Paul and the circus in the Champ Elysées. He arranged the Place de la Concorde, the place of the Arc de Triomphe, and built the new Paris terminus of the Northern Railway. M. Hittorf was a member of the Academy, and author of works on the architecture of ancient and modern society, on the polychromatic architecture of Greece, and on the antiquities of Attica. The last has been published in English.

Notes.

PNEUMATIC DISPATCH BETWEEN THE BOURSE AND THE GRAND HOTEL IN PARIS.—This tube is the commencement of a system which is to extend under ground throughout Paris, based on a principle which up to the present time has not been applied as a useful means of propulsion. It is not the atmospheric pressure which acts on the piston from behind with a vacuum in front, but it is the elasticity of compressed air which supplies the necessary propelling force, and this process gets rid both of an exhausting machine and the steam power. The compression of the air is obtained by means of water furnished by the reservoirs of Paris, the power of which is equivalent to a head of 15 metres. To produce the result three vessels of sheet iron, each holding 4,500 litres, are fixed; the first is intended to receive the water and to give the pressure, the two others receive the compressed air. A large cock allows the water brought from the subterranean pipes to penetrate. As the vessel fills, the air which it contains is compressed and driven back into the two others, in passing through a tube furnished with a valve which prevents its return. When the water has entirely filled the vessel, it is allowed to run out by a second cock, whilst a valve applied to the upper side, which is lowered by means of a lever, allows the outer air to enter as the water runs out. By filling the vessel a second time with water, a fresh quantity of air is added to that already compressed, and a pressure of about two atmospheres is thus obtained. The two offices are connected by a cast iron tube about 1,060 metres long, the interior diameter, $2\frac{1}{2}$ inches, opening at each extremity into an hermetically sealed chamber by a door which allows the introduction or withdrawal of the piston carrier containing the dispatches. This pis-

ton consists of a hollow brass cylinder, $5\frac{1}{4}$ inches long at one extremity, and furnished at the other with a moveable lid. It will hold about 40 dispatches placed in envelopes. Before sending off a dispatch an electric bell gives a signal to the correspondent at the opposite end, who answers by signal that the way is clear, that is to say, in communication with the outer air. The cylinder containing the dispatches is placed in the opening of the tube, which is closed by the turn of the handle, and communication is made with compressed air. The piston, smartly driven back, drives before it the air in the tube, and arrives at its destination in about 60 or 80 seconds. Whilst one station gives the pressure, another can send the message, so that 5 minutes is sufficient for a journey and return of the piston. This system obviates stoppages between stations.

MEETINGS FOR THE ENSUING WEEK.

- MON.....London Inst., 7. Prof. Westwood, "On Entomology."
TUES ...Medical and Chirurgical, 8 $\frac{1}{2}$.
Ethnological, 8. 1. Dr. Collingwood, "Visit to the Kibalan Village of Sano Bay, north-east coast of Formosa." 2. Mr. John Crawford, "On Colour of the Skin, Hair, and Eyes, as a Test of the Race of Man."
WED ...Society of Arts, 8. Mr. S. J. Mackie, "On the Construction of Iron Ships, and their Preservation by Zinc Sheathing."
London Inst., 12. Annual Meeting.
Microscopical, 8.
R. Society of Literature, 4 $\frac{1}{2}$. Annual Meeting.
Archæological Assoc., 8 $\frac{1}{2}$.
THUR ...London Inst., 7. Prof. Bentley, "On Botany."
Mathematical, 8.

PARLIAMENTARY REPORTS.

SESSIONAL PRINTED PAPERS.

- Delivered on 23th March, 1867.*
- Numb.
74. Bills—Bankruptcy.
75. " Judgment Debtors.
76. " Bankruptcy Acts Repeal.
83. " Public Houses Regulation.
87. " Petty Sessions (Ireland) Act (1851) Amendment.
92. " Public Libraries (Scotland) Acts Amendment.
98. " Alimony Arrears.
94. " Sale of Land by Auction (as amended).
152. Army (Gun Cotton)—Detailed Account.
153. Volunteers—Circular Letter.
164. Civil Services—Supplementary Estimate.
- Delivered on 30th March, 1867.*
80. Bills—Turnpike Trusts.
97. " Traffic Regulation (Metropolis).
99. " Canada Railway Loan.
46. (H.) Trade and Navigation Accounts (February 28th, 1867).
140. Railways—Return.
151. Army (Staff College Examinations)—Return.
165. Waterford County Election—Return.
166. Police (Waterford)—Correspondence.
Public Petitions—Twelfth Report.
- Delivered on 1st April, 1867.*
95. Bill—Sale of Liquors (Ireland).
96. " Sale of Liquors on Sunday.
78. (iv.) Committee of Selection—Fifth Report.
126. Scurvy—Correspondence.
163. Sugar—Return.
168. Greenwich Hospital—Return.
169. Court of Common Pleas—Returns.
- Delivered on 2nd April, 1867.*
89. Bill—Public Health (Scotland).
100. " Hypothec Amendment (Scotland).
101. " Railway Companies (Winding-up) (Ireland) (corrected copy).
75. (H.) Societies—Return.
150. Militia Regiments—Return.
173. East India Railway Company—Letter.
The "Queen Victoria"—Correspondence.
The "Tornado"—Correspondence (Part V.).
- Delivered on 3rd April, 1867.*
157. Fortifications—Return.
162. Sanitary Science (Ireland)—Correspondence.
Public Petitions—Fourteenth Report.
- Delivered on 4th April, 1867.*
103. Bill—Sale and Purchase of Shares (as amended).
164. " Fortifications (Provision for Expenses).
172. Tay River—Report of Commissioners.
Russia and Rome—Despatch of Prince Gortschakoff.

Delivered on 5th April, 1867.

106. Bill—Sunday Lectures.
 107. „ „ Bunhill-fields Burial Ground.
 177. Navy (Marine Officers)—Correspondence.

SESSION 1866.

145. Government Insurances and Annuities—Accounts.

Delivered on 6th April, 1867.

148. East India (Tariff Valuations)—Supplement to Gazette of India.
 186. Traffic Regulation (Metropolis) Bill—Lords' Report, Minutes of Evidence, &c.
 Public Petitions—Fifteenth Report.

Delivered on 8th April, 1867.

106. Bill—Sunday Lectures (corrected copy).
 108. „ „ Chester Courts (as amended).
 109. „ „ Burials (Ireland).
 78. (v.) Committee of Selection—Sixth Report.
 153. Seamen's Wages (British Ships)—Return.
 182. Militia Barracks and Regiments—Returns.
 184. Volunteer Capitulation Grant—Report.
 186. Telegraphic Communication—Treasury Minute.
 The "Tornado"—Correspondence (Part VI.).

Delivered on 9th April, 1867.

178. Navy (Vessels of War)—Return.
 179. Navy (Promotions)—Return.
 201. Whiteboy Acts—Circular.
 207. Small Tenements Rating Act—Return.
 Public General Acts—Cap. I. to X.

Delivered on 10th April, 1867.

112. Bill—Libel (as amended).
 0-86. Tenants Improvements Compensation (Ireland) Bill (1852)—Reprint of Session 1852.
 170. Post-office Savings Banks—Account.
 174. Westminster Abbey—Correspondence.
 204. Army (Surgeons)—Returns.
 213. Immigrants and Liberated Africans—Return.
 214. Coolie Immigrants (Demerara)—Return.
 Manufactures, Commerce, &c.—Reports by Her Majesty's Secretaries of Embassy and Legation (No. 3).

Delivered on 11th April, 1867.

115. Bill—Representation of the People (Ireland).
 119. „ „ Corrupt Practices at Elections.
 146. Navy (Pig Iron)—Messrs. Ryland's and other Reports.
 171. Navy (Channel Fleet)—Adml. Vellyerton and Adml. Warden's Reports.
 194. Public Income and Expenditure (31st March, 1867)—Account.
 208. Libel Bill—Report.
 Public Petitions—Sixteenth Report.

Delivered on 12th April, 1867.

116. Bill—Game Laws (Scotland).
 119. „ „ Corrupt Practices at Elections (corrected copy).
 120. „ „ Mixed Marriages (Ireland).
 161. Metropolitan Police—Returns.
 180. Navy (Channel Squadron)—Report.
 192. Registration of Deeds (Ireland)—Account.
 199. Oyster Fisheries (Ireland)—Account.
 202. Robert Sim—Depositions, &c.

Patents.

From Commissioners of Patents' Journal, April 12th.

GRANTS OF PROVISIONAL PROTECTION.

- Animal and vegetable substances, preservation of—846—J. and A. Gamgee.
 Armour sheathing, &c.—856—Joseph Betteley.
 Bale fastener—858—H. Fassmann.
 Boilers—757—T. Dunn.
 Bottles, casing for—797—W. McAdam and S. Schuman.
 Breaks, railway—807—G. A. Laurent.
 Buttons, &c., securing—873—J. Hesse.
 Carpets, &c.—899—A. Turner and W. E. Newton.
 Carriages—875—A. F. Langin.
 Casks, &c., apparatus for cleansing—3391—E. Allen.
 Cisterns—902—A. Mackenzie and S. Robinson.
 Coal, &c., machinery for procuring—886—G. E. Donisthorpe.
 Cork and leather, process for uniting, separately or combined—878—J. Toussaint.
 Cultivator, land—862—R. Higgins.
 Driving-bands—877—T. Unsworth.
 Elastic web, &c.—939—W. Gadd and L. Baillon.
 Envelopes—900—L. Foinquinos.
 Fabrics, manufacturing—923—J. G. Tongue.
 Fencing, iron and wire—874—E. O. Greening.
 Fibrous materials, preparing—907—W. Crighton.
 Fibrous substances, spinning, &c.—852—W. Busfield.
 Filters—708—J. Fox.
 Fire-arms—881—H. G. Riggs.
 Fire-arms, breech-loading—863—A. Wyley.
 Fire-arms, breech-loading—866—W. Clark.
 Fire-arms, breech-loading—901—J. Wernil.
 Fire-arms, breech-loading—913—W. Clark.
 Flax, &c., preparing—711—W. Trimble.
 Flax, &c., preparing—801—R. H. Collyer.

- Floors, &c.—885—R. Moreland.
 Fuel, artificial—935—J. Bird and J. Bird.
 Furnaces—867—T. Wrigley.
 Gauge, steam—871—G. Davies.
 Heating apparatus—777—H. J. Newcome.
 Hoops, skipping—864—J. G. Tongue.
 Hoops, steel, for railway wheels—911—D. Foster and R. Cooke.
 Iron, &c., manufacture of—888—H. Sharp and F. W. Webb.
 Iron, &c., manufacture of—909—T. Roper.
 Locks and keys—937—J. Wolverson.
 Looms—883—E. B. Bigelow.
 Manure—933—W. Clark.
 Mines, &c., draining—860—W. Matthews.
 Motive-power machinery—848—L. Horsfield.
 Motors, hydraulic—641—P. R. Hodge.
 Musical instruments—896—A. Findlay.
 Musical instruments, wind—929—M. Henry.
 Nuts, &c.—892—G. R. Postlethwaite.
 Nut tapping machine—847—E. Watteaw.
 Painting machine—894—H. Fassmann.
 Posts, &c., telegraph—831—C. E. Sohn.
 Railways—868—W. Seaton.
 Razor-strops, &c.—895—J. M. Laurent.
 Rifles, projectiles for—884—G. Hookham.
 Screws—876—W. R. Lake.
 Semolina, manufacturing—917—G. A. Buchholz.
 Ships, propelling—890—C. E. Brooman.
 Ships, propelling—915—M. P. W. Boulton.
 Ships, &c., propelling—749—P. Crause.
 Ships, &c., protecting—903—W. R. Dawson and J. B. Davies.
 Signals, railway—905—J. Arnold and G. Daniel.
 Signals, &c., railway—870—J. Saxby.
 Signals, &c., railway—927—W. Easterbrook.
 Skates—831—W. B. Hilliard.
 Steam-engines—882—W. E. Newton.
 Steam-engines—897—J. Bruckshaw and C. Cornes.
 Steam-engines—904—W. B. Naton.
 Steam-engines, heating water for feeding the boilers of condensing—925—K. Barnes.
 Stone-cutter—864—W. E. Newton.
 Stoves—893—R. Howson.
 Tanning apparatus—919—W. R. Lake.
 Tools, edge—891—E. W. Shirt.
 Venetian blinds—889—J. M. Jomain.
 Watches, manufacturing—880—J. Wycherley.
 Wines, &c., decanting—921—J. H. Johnson.
 Wood-cutter—898—S. W. Worssam.
 Wool, cleansing—872—A. C. Henderson.
 Yarns, printing—850—W. J. Hanson.

INVENTION WITH COMPLETE SPECIFICATIONS FILED.

- Soap—1046—H. A. Bonneville.

PATENTS SEALED.

- | | |
|------------------------------------|----------------------|
| 2382. J. Dunn. | 2709. A. Parkes. |
| 2652. A. Albini & F. A. Braendlin. | 2727. S. Peddar. |
| 2657. W. L. Wrey. | 2731. J. Richards. |
| 2664. D. Gilson. | 2786. F. Tubino. |
| 2668. J. Blain. | 2837. W. Geeves. |
| 2671. A. Swan. | 2853. E. P. North. |
| 2672. J. Smith and J. J. Rowe. | 3327. W. R. Lake. |
| 2675. T. Woodward. | 3359. C. Norrington. |
| 2681. J. Slessor. | 3372. W. Clark. |
| 2684. J. Coates. | 36. E. K. Dutton. |
| 2689. W. Manwaring. | 454. W. Harrison. |
| 2699. J. Hosken. | 464. G. Haseltine. |
| 2700. C. E. Brooman. | |

From Commissioners of Patents' Journal, April 16th.

PATENTS SEALED.

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|----------------------------------|------------------------------------|
| 2693. W. E. Gedge. | 2787. J. Gee. |
| 2696. N. Grew and G. H. Money. | 2827. J. J. Holden and S. J. Best. |
| 2698. W. Simpson. | 2899. C. Churchill. |
| 2707. E. L. Simpson. | 2904. W. E. Newton. |
| 2708. C. Jones. | 2923. W. E. Newton. |
| 2712. J. H. Kidd & J. C. Mather. | 2940. N. Korshunoff. |
| 2717. T. Horby. | 2975. W. W. Marston. |
| 2719. F. Petitdier. | 3276. J. H. Grell. |
| 2721. J. Day. | 311. J. D. Bulloch. |
| 2728. J. H. Johnson. | 341. J. S. Hoar. |
| 2734. R. Hollingdrake. | 356. E. Firth. |
| 2754. B. J. B. Mills. | 394. W. H. Towers. |
| 2768. W. Weldon. | 593. G. Haseltine. |

PATENTS ON WHICH THE STAMP DUTY OF £50 HAS BEEN PAID.

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|---------------------------------|------------------------------|
| 893. J. H. Simpson. | 936. J. Bullough. |
| 900. E. Dronke. | 953. J. H. Johnson. |
| 913. T. Chamberlayne. | 941. H. Higgins. |
| 927. W. Reading. | 952. C. Doughty & W. D. Key. |
| 931. J. Neilson and J. Gillies. | |

PATENTS ON WHICH THE STAMP DUTY OF £100 HAS BEEN PAID.

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|-------------------------------|------------------------|
| 905. T. H. P. Dennis. | 935. M. A. F. Mennons. |
| 899. J. Rigby & W. N. Norman. | 922. J. Platt. |
| 991. T. G. Dawes. | |